REMARKS/ARGUMENTS

In the Office Action dated February 13, 2004, the Examiner has objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "425" of Figure 19. The Specification has been amended to include reference to "425" of Figure 19 to comply with 37 CFR 1.84(p)(5). Accordingly, no change is required in the original drawing Figure 19. New drawing sheets for Figures 1-5, 6a – 6c, 7a – 7c, 8-19, 20a, 20b, 21-1, 21,2, 21-3, 21-4, 21-5, 21-6, 22, 23a – 23c and 24 have been submitted to replace the informal drawing sheets currently on file, and contain no new subject matter. The Examiner has rejected Claims 1-3 and 8-12 under 35 U.S.C. §102(b), and rejected Claims 4-7 under 35 U.S.C. §103(a) as being unpatentable over Hayashi, et al. (U.S. Patent No. 5,790,282) in view of Miller, et al. (U.S. Patent No. 5,731,823). By this paper, the specification and Claims 1 and 12 have been amended to more particularly point out and distinctly claim that which Applicants regard as the invention. For the reasons set forth below, Applicants now consider Claims 1-12, as amended, allowable over the prior art.

Claims 1-3 and 8-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hayashi, et al. (U.S. Patent No. 5,790,282). Hayashi, et al. show an apparatus and method for color image adjustment. Color image data for three primary colors are adjusted so that the sum of the color image data for the three primary colors is kept unchanged before and after the adjustment. Thus, the saturation adjustment can be achieved without a change in the brightness of an image. With regard to independent Claim 1, the Examiner contends that Hayashi, et al. show an operator input section (10 of Hayashi, et al.) for a color copier that includes a start key for giving an instruction for starting a copying operation, ten keys for inputting the number of copies to be made, and color adjustment input keys for color adjustment operations (brightness adjustment, hue adjustment and saturation adjustment) (column 5, lines 10-17 of Hayashi, et al.). The saturation adjustment is performed so that the sum of the image data C, M, Y before the saturation adjustment equals the sum of the image data C", M" and Y" after the saturation adjustment (column 5, lines 59-63 of Hayashi, et al.). A saturation adjustment factor is used in the processing of the image data to adjust the saturation (column 6, lines 33-35 of Hayashi, et al.). After saturation adjustment, the color components of the image data are altered to new values that the sum of the color image data for the three primary colors is kept

unchanged before and after the adjustment (column 8, lines 37-49). However, Hayashi, et al. does not show, or in any way teach, preference color tweaking of the already rasterized color image data (so no rescanning or reripping of already scanned/ripped data is necessary when customers need to make last minute change, even during printing of the image (page 9, lines 29-33 of the Application)). Hayashi, et al. also does not teach individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve of FIG. 18 of the Application can be individually adjusted via a 1-D LUT, so it is not subjected to the restriction of a global saturation adjustment factor discussed in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment). Hayashi, et al. also does not teach independent color channel preference color tweaking (column 8, lines 31-36 of Hayashi, et al. states that the sum of the image data, C, M, and Y before the saturation adjustment is equal the sum of the image data C", M" and Y" after the saturation adjustment; therefore the color channels cannot be independently adjusted as in the current Application), as now specifically recited in independent Claim 1, as amended. This is an important aspect of Applicants' invention in that it provides individual data point adjustable, preference color tweaking of the already rasterized independent color separation image data without re-rasterization (as pointed out in page 9, line 29 to page 10, line 27 of the specification, as well as in FIG. 19 of the Application). Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, amended independent Claim 1 should now be allowed.

With regard to dependent Claim 2, the Examiner has cited Hayashi, et al. as showing that an output of the output format processing circuit (45 of FIG. 2) is applied to the image quality correction circuit (46 of FIG. 2), which perform a sharpening or a softening process for reducing the stiffness of the image, the image data outputted from the image quality correction circuit being further subjected to a gradation adjustment process which is performed by the gradation adjustment circuit (47 of FIG. 2) and then applied to the output circuit (48 of FIG. 2) (see FIG. 2 and column 4, line 63 to column 5 line 6 of Hayashi, et al.). Even if a first halftoned data via circuit 46 is passed onto circuit 47 for halftoning again as suggested by the Examiner, significant moiré will result since the two halftone screens can beat against each other. Hayashi, et al. does not show, or in any way teach, subjecting data represented by the third signal to first and second halftone processes (see FIG. 1 in the

Application to note that the plural halftone processes are run in parallel, not in series) and then blending the respective outputs from the first and second halftone processes, as specifically recited in dependent Claim 2. Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, dependent Claim 2 should now be allowed.

Regarding dependent Claim 3, the Examiner has cited Hayashi, et al. as showing an output of the output format processing circuit (45 of FIG. 2) is applied to the image quality correction circuit (46 of FIG. 2), which perform a sharpening or a softening process for reducing the stiffness of the image, the image data outputted from the image quality correction circuit being further subjected to a gradation adjustment process which is performed by the gradation adjustment circuit (47 of FIG. 2) and then applied to the output circuit (48 of FIG. 2) (see FIG. 2; column 4, line 64 to column 5, line 6; column 5, line 10-17; column 5, lines 29-31 and column 6, lines 16-22 of Hayashi, et al.) Processing an image through a sharpening or a softening process (46 of FIG. 2 of Hayashi, et al.) and then through a gradation adjustment process (47 of FIG. 2 of Hayashi, et al.) only generates a modified image, but does not generate a blending coefficient for use in blending the parallel running plural halftone processes (as shown in FIG. 3 of the Application). Hayashi, et al. does not show, or in any way teach, generating a blending coefficient based on the operator adjusted color tweaking data for use to blend the parallel running plural halftone processes together (see FIG. 1), as specifically recited in dependent Claim 3. Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, dependent Claim 3 should now be allowed.

With regard to dependent Claims 8 and 9, the Examiner cited Hayashi, et al. as showing storing the image data in RAM (column 5, lines 18-25 of Hayashi, et al.) and a second signal variable that designates the level of saturation adjustment (column 6, lines 33-36 of Hayashi, et al.) probably inherently in memory. However, Hayashi, et al. does not show, or in any way teach, modifying image data subsequent to color tweaking to form a binary image data file and subjecting the binary image file to an edge enhancement process to reduce raggedness in the image (specifically recited in Claim 8). Hayashi, et al. also do not teach individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve, of FIG. 18 of the Application, can be individually adjusted via a 1-D LUT, recited specifically in Claims 8 and 9, so it is not subjected to the restriction of a

global saturation adjustment factor described in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment). There is a substantial difference between storing a 1-D LUT (second signal as recited in Claims 8 and 9 and shown in FIG. 18) that has all point adjustable data versus storing a single signal variable that has other constraints (as discussed above for the Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment), as specifically recited in dependent Claims 8 and 9. Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, dependent Claims 8 and 9 should now be allowed.

With regard to dependent Claims 10 and 11, the Examiner cited Hayashi, et al. as showing image data recorded on an electrostatographic recording surface as a color separation image (column 3, lines 33-54, and lines 60-67 of Hayashi, et al.). However, Hayashi, et al. does not disclose individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve, of FIG. 18 of the Application, can be individually adjusted via a 1-D LUT, wherein image data is recorded on an electrostatic recording surface as a color separation image, and plural color separation images are recorded and eventually transferred to a receiver sheet in superposed register, as recited specifically in Claim 10, so the color separation file is not subjected to the restriction of a global saturation adjustment factor described in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment). There is a substantial difference between storing a 1-D LUT (the second signal as recited in Claim 10 and shown in FIG. 18 of the Application) that has all point adjustable data versus storing a single signal variable that has other constraints (as discussed relative to Hayashi, et al.), as specifically recited in dependent Claim 10. Also, Hayashi, et al. does not show, or in any way teach, preference color tweaking of the already rasterized color image data (so no rescanning or reripping of already scanned/ripped data is necessary when customers need to make last minute change, even during printing of the image as disclosed on page 9, lines 29-33 of the Application). Hayashi, et al. also does not teach individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve, of FIG. 18 of the Application, can be individually adjusted via a 1-D LUT, so it is not subjected to the restriction of a global saturation adjustment factor described in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio

after adjustment). . Hayashi, et al. also does not teach independent color channel preference color tweaking (column 8, lines 31-36 of Hayashi, et al. disclose that the sum of the image data, C, M, and Y before the saturation adjustment is equal the sum of the image data C", M" and Y" after the saturation adjustment; therefore the color channels cannot be independently adjusted as taught in the current Application). These are the important aspects of Applicant's invention specifically recited in dependent Claim 11. Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, dependent Claims 10 and 11 should now be allowed.

With regard to independent Claim 12, the Examiner cited Hayashi, et al. as disclosing an image processing system including a RAM that stores image data to adjust color saturation of an input scanned image (FIG. 2 of Hayashi, et al.) with an operator input section (10 of Hayashi, et al.) for a color copier that includes a start key for giving an instruction for starting a copying operation, ten keys for inputting the number of copies to be made, and color adjustment input keys for color adjustment operations (brightness adjustment, hue adjustment and saturation adjustment) (column 5, lines 10-17 of Hayashi, et al.). The scanned in color separation data is passing through from the scanner to a FIFO to the rest of the system for further processing (no multipage job image buffer or page buffer is used to hold the already scanned image pages as shown in FIG. 19 of the current Application). Color image data for three primary colors are adjusted so that the sum of the color image data for the three primary colors is kept unchanged before and after the adjustment. Thus, the saturation adjustment can be achieved without a change in the brightness of an image. The saturation adjustment is performed so that the sum of the image data C, M, Y before the saturation adjustment equals the sum of the image data C", M" and Y" after the saturation adjustment (column 5, lines 59-63 of Hayashi, et al.). A saturation adjustment factor is used in the processing of the image data to adjust the saturation (column 6, lines 33-35 of Hayashi, et al.). After saturation adjustment, the color components of the image data are altered to new values that the sum of the color image data for the three primary colors is kept unchanged before and after the adjustment (column 8, lines 37-49 of Hayashi, et al.). However, Hayashi, et al. does not show, or in any way teach, preference color tweaking of the already rasterized color image data (so no rescanning or reripping of already scanned/ripped data is necessary when customers need to make last minute change, even during printing of the image (page 9, line 29-33 of the Application)). Hayashi, et al. also does not teach

individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve, of FIG. 18 of the Application, can be individually adjusted via a 1-D LUT, so the color separation file is not subjected to the restriction of a global saturation adjustment factor described in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment). Hayashi, et al. also does not teach independent color channel preference color tweaking (column 8, lines 31-36 of Hayashi, et al. disclose that the sum of the image data, C, M, and Y before the saturation adjustment is equal the sum of the image data C", M" and Y" after the saturation adjustment; therefore the color channels cannot be independently adjusted as taught in the current application for a color separation image), as now specifically recited in independent Claim 12, as amended. This is an important aspect of Applicants' invention in that it teaches an image processing system with individual data point adjustable, preference color tweaking of the already rasterized independent color separation image data without re-rasterization (as pointed out in page 9, line 29 to page 10, line 27 of the specification, as well as in FIG. 19 of the Application). Therefore, it is respectfully submitted that this rejection is no longer proper. Accordingly, amended independent Claim 12 should now be allowed.

Dependent Claims 4 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hayashi, et al. (U.S. Patent No. 5,790,282) in view of Miller, et al. (U.S. Patent No. 5,731,823). Examiner cited Hayashi, et al. as disclosing an output of the output format processing circuit (45 of FIG. 2) is applied to the image quality correction circuit (46 of FIG. 2), which perform a sharpening or a softening process for reducing the stiffness of the image, the image data outputted from the image quality correction circuit are further subjected to a gradation adjustment process which is performed by the gradation adjustment circuit (47 of FIG. 2) and then applied to the output circuit (48 of FIG. 2) (see FIG. 2 and column 4, line 63 to column 5 line 6 of Hayashi, et al.). Even if a first halftoned data via circuit 46 is passed onto circuit 47 for halftoning again as suggested by the Examiner, significant moiré will result since the two halftone screens can beat against each other. Processing an image through a sharpening or a softening process (46 of FIG. 2) and then through a gradation adjustment process (47 of FIG. 2) only generates a modified image, but does not generate a blending coefficient for use in blending the parallel running plural halftone processes (as shown in FIG. 3 of the Application). Miller, et

al. teach using resolution enhancement or smoothing to the black regions to enhance the edge definition (column 9, lines 39-52 and column 10, lines 19-25 of Miller, et al.). In fact, enhancement on the color separations is not included in the Miller, et al. teaching (column 9, lines 39-52 and column 10, lines 19-25 of Miller, et al.). Miller, et al. also does not teach any blending operation at all. Both Hayashi, et al. and Miller, et al. do not teach generation of blending coefficients (as specifically recited in dependent Claim 4 of the Application) and modifying the output of the blending operation into a binary file and subjecting the binary image file (all the color separations) to edge enhancement process to reduce jaggedness in the image (as specifically recited in dependent Claims 4 and 5 of the Application). Accordingly, Applicants' invention would not be obvious to one of ordinary skill in the art in view of the cited references either individually or in any proper combination. Therefore, dependent Claims 4 and 5 should now be allowed.

Regarding dependent Claim 6, the Examiner cited Hayashi, et al. as teaching color tweaking of image data. Hayashi, et al. does not disclose expressly modifying image data subsequent to color tweaking to an edge enhancement process to reduce jaggedness in the image. Miller, et al. disclose modifying the black image data by edge enhancement process to reduce jaggedness in the image. In fact, enhancement on the color separations is not included in the Miller, et al. teaching (column 9, lines 39-52 and column 10, lines 19-25 of Miller, et al.). Both Hayashi, et al. and Miller, et al. do not teach preference color tweaking of the already rasterized color image data (so no rescanning or reripping of already scanned/ripped data is necessary when customers need to make last minute change, even during printing of the image disclosed on page 9, lines 29-33 of the Application). They also do not teach individual data point preference color tweaking on color separation files (i.e., the data points on the color tweaking curve, of FIG. 18 of the Application, can be individually adjusted via a 1-D LUT, so the color separation file is not subjected to the restriction of a global saturation adjustment factor described in column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment). Furthermore they do not teach independent color channel preference color tweaking (column 8, lines 31-36 of Hayashi, et al. disclose that the sum of the image data, C, M, and Y before the saturation adjustment is equal the sum of the image data C", M" and Y" after the saturation adjustment; therefore the color channels cannot be independently adjusted as taught in the current application). Both

Hayashi, et al. and Miller, et al. do not teach modifying image data (all the color separations, not just black only) subsequent to even a last-minute all points adjustable tuning in color saturation color tweaking process without re-rasterizing the image data, to an edge enhancement process to reduce jaggedness in the image (as specifically recited in dependent Claim 6 of the Application). Accordingly, Applicants' invention would not be obvious to one of ordinary skill in the art in view of the cited references either individually or in any proper combination. Therefore, dependent Claim 6 should now be allowed.

Dependent Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hayashi, et al. (U.S. Patent No. 5,790,282) in view of Miller, et al. (U.S. Patent No. 5,731,823). Examiner cited the Hayashi, et al. patent that taught color tweaking of image data that may be binary. Hayashi, et al. does not disclose expressly modifying image data subsequent to color tweaking to an edge enhancement process to reduce jaggedness in the image. Miller, et al. disclose modifying the black image data by edge enhancement process to reduce jaggedness in the image. In fact, enhancement on the color separations is not included in the Miller, et al. teaching (column 9, lines 39-52 and column 10, lines 19-25 of Miller, et al.). Both Hayashi, et al. and Miller, et al. do not teach preference color tweaking of the already rasterized color image data (so no rescanning or reripping of already scanned/ripped data is necessary when customers need to make last minute change, even during printing of the image (page 9, lines 29-33 of the application)). They also do not teach individual data point preference color tweaking on color separation files (the data points on the color tweaking curve (FIG. 18 of the application)) can be individually adjusted via a 1-D LUT, so it is not subjected to the restriction of a global saturation adjustment factor (see column 6, lines 33-51 of Hayashi, et al., that certain data ratio before adjustment has to equal the ratio after adjustment) as taught by Hayashi, et al. Furthermore they do not teach independent color channel preference color tweaking (column 8, lines 31-36 of Hayashi, et al. states that the sum of the image data, C, M, and Y before the saturation adjustment is equal the sum of the image data C", M" and Y" after the saturation adjustment; therefore the color channels cannot be independently adjusted as taught in the current application). Both Hayashi, et al. and Miller, et al. do not teach modifying image data (all the color separations, not just black only) subsequent to even a last-minute all points adjustable tuning in color saturation color tweaking process without re-rasterizing the image

data, to form a binary image data file and subjecting the binary file to an edge enhancement process to reduce jaggedness in the image (as specifically cited in dependent Claim 7 of the application). Accordingly, Applicant's invention would not be obvious to one of ordinary skill in the art in view of the cited references either individually or in any proper combination. Therefore, dependent Claim 7, dependent directly or indirectly thereon, should now be allowed.

Applicants are not aware of any additional patents, publications, or other information not previously submitted to the Patent and Trademark Office which would be required under 37 C.F.R. §1.99.

This Application is now believed to be in condition for favorable reconsideration and early allowance, and such actions are respectfully requested.

Respectfully submitted,

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